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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,233	11/28/2001	Victor Vilnrotter	47456/RAG/C766	9956

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EXAMINER	
LEE, DAVID J	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/996,233	VILNROTTER ET AL.	
	Examiner	Art Unit	
	David Lee	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-3,5-17 and 21* is/are allowed.

6)☐ Claim(s) *18-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 18 and 19 are objected to because of the following informalities:

In claim 18, please change "utilizing an optimally weighted signal processing" to --utilizing optimally weighted signal processing--.

In claim 19, please change "utilizing an adaptive synthesized single-detector processing" to --utilizing adaptive synthesized single-detector processing--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Flockencier (US Patent No. 6,115,113) in view of Matsumoto et al. (US Patent No. 5,099,114).

Regarding claim 18, Flockencier teaches a method for optimizing an optical communications receiver by eliminated atmospheric turbulence degradation of signals comprising: detecting an incoming optical signal in a detector array with detector elements such that each detector element outputs a detector output (764 of fig. 7; see also col. 13, lines 24-30); and optimizing the detector outputs in real-time at a rate equal

to or greater than the Nyquist rate of the detected signal (col. 2, lines 13-30), utilizing an optimally weighted signal processing, the optimally weighted signal processing multiplying each detector output with a weighting factor for optimizing optical communications performance (col. 16, lines 45-56). Flockencier does not disclose that the detector array is a grid array of NxM detector elements, where N>=2 and M>=2. However, NxM detector arrays are well known in the art. For example, Matsumoto discloses a 2x2 detector array for receiving optical input signals (25 of fig. 4). It would have been obvious to one of ordinary skill in the art at the time of invention to utilize the 2x2 detector of Matsumoto to detect the incoming signals in the system of Flockencier in order to efficiently detect the plurality of signals.

4. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brandstetter (US Patent No. 6,091,523) in view of Swaminathan et al. (US Pub. No. 2004/0012544 A1) and Matsumoto et al.

Regarding claim 19, Brandstetter teaches a method for optimizing an optical communications receiver by eliminated atmospheric turbulence degradation of signals (Abstract) comprising: detecting an incoming optical signal in a detector array with detector elements (64 of fig. 1) such that each detector element outputs a detector output (68 of fig. 1); and determining a set of detector outputs in real time (Abstract, lines 4-6), utilizing an adaptive synthesized single-detector signal processing configured to optimize optical communications performance (col. 2, lines 40-56: the adaptive real time filtering mechanism processes the signals in an adaptive synthesized "single-

detector" fashion). Brandstetter does not specifically disclose that the processing rate is equal to or greater than the Nyquist rate. However, since the system of Brandstetter performs signal processing very rapidly in real time, it would have been desirable to sample the signals at least at the Nyquist rate in order to achieve sufficient and accurate processing of the signals. It is well known in the art to sample such systems at the Nyquist rate (see paragraph 0076 of Swaminathan). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to process the signals at a rate equal to or greater than the Nyquist rate as disclosed by Swaminathan in the system of Brandstetter in order to achieve sufficient and accurate processing of the signals.

The combined invention of Swaminathan and Brandstetter discloses that a detector array is used to detect the incoming signals. However, it is not specifically disclosed that the detector array is a grid array of NxM detector elements, where N>=2 and M>=2. However, grid arrays of such specifications are well known in the art. For example, Matsumoto discloses a 2x2 detector array for receiving optical input signals (25 of fig. 4). It would have been obvious to one of ordinary skill in the art at the time of invention to utilize the 2x2 detector of Matsumoto to detect the incoming signals in the combined system of Brandstetter and Swaminathan in order to efficiently detect the plurality of signals.

Regarding claim 20, Brandstetter teaches a method for optimizing an optical communications receiver by eliminated atmospheric turbulence degradation of signals (Abstract) comprising: detecting an incoming optical signal in a detector array with

detector elements (64 of fig. 1) such that each detector element outputs a detector output (68 of fig. 1); and determining a set of detector outputs in real time (Abstract, lines 4-6), utilizing signal-to-noise processing configured to optimize optical communications performance (col. 3, lines 36-40). Brandstetter does not specifically disclose that the processing rate is equal to or greater than the Nyquist rate. However, since the system of Brandstetter performs signal processing very rapidly in real time, it would have been desirable to sample the signals at least at the Nyquist rate in order to achieve sufficient and accurate processing of the signals. It is well known in the art to sample such systems at the Nyquist rate (see paragraph 0076 of Swaminathan). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to process the signals at a rate equal to or greater than the Nyquist rate as disclosed by Swaminathan in the system of Brandstetter in order to achieve sufficient and accurate processing of the signals.

The combined invention of Swaminathan and Brandstetter discloses that a detector array is used to detect the incoming signals. However, it is not specifically disclosed that the detector array is a grid array of NxM detector elements, where N>=2 and M>=2. However, grid arrays of such specifications are well known in the art. For example, Matsumoto discloses a 2x2 detector array for receiving optical input signals (25 of fig. 4). It would have been obvious to one of ordinary skill in the art at the time of invention to utilize the 2x2 detector of Matsumoto to detect the incoming signals in the combined system of Brandstetter and Swaminathan in order to efficiently detect the plurality of signals.

Allowable Subject Matter

5. Claims 1-3, 5-17 and 21 allowed.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lee whose telephone number is (571) 272-2220. The examiner can normally be reached on Monday - Friday, 9:00 am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. R. Sedighian

M. R. SEDIGHIAN
PRIMARY EXAMINER

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